CLAIMS

1.-28. (CANCELED)

29. (CURRENTLY AMENDED) A heat generator (10-14) with magneto-caloric material comprising at least one thermal element (Ti), at least one magnetic element (Gi) for generating a magnetic field, said at least one thermal element (Ti) being located opposite said at least one magnetic element (Gi) so said at least one thermal element (Ti) ~~can be~~ being subjected to at least one portion of said magnetic field, said heat generator (10-14) also comprising magnetic modulation means (Mj, mj) for varying the magnetic field received by said at least one thermal element (Ti) and a means for recovering at least a portion of thermies generated by said at least one thermal element (Ti) subject to the variable magnetic field, said magnetic modulation means comprises at least one magnetic modulation element (Mj, mj) that is magnetically conductive, coupled with a displacement means for alternately displacing the magnetic modulation element relative to said at least one magnetic element (Gi) and to said at least one thermal element (Ti) between an active position, in which the magnetic modulation element is close to said at least one magnetic element (Gi) and said at least one thermal element (Ti) and channels at least the portion of said magnetic field that ~~will be~~ being received by said at least one thermal element (Ti), and an inactive position, in which the magnetic modulation element is distanced from at least one of said magnetic element (Gi) and said at least one thermal element (Ti) and has no effect on the portion of the magnetic field.

30. (CURRENTLY AMENDED) The heat generator (10, 11, 12, 14) according to claim 29, wherein the magnetic modulation element is a magnetic convergence element (Mj) made of a material with higher magnetic conductivity than a conductivity existing in an ambient milieu separating said magnetic element (Gi) and said thermal element (Ti) and said magnetic convergence element (Mj), when in the active position,

promotes passage of said magnetic field toward said thermal element (Ti) resulting in an increase in the magnetic field crossing [[it]] <u>said thermal element (Ti)</u>. ✓

31. (CURRENTLY AMENDED) The heat generator (10, 12, 13) according to claim 29, wherein the magnetic modulation element is a magnetic divergence element (mj) made of a material with higher magnetic conductivity than said thermal element (Ti), said magnetic divergence element (mj) has at least one shape that can bypass said thermal element (Ti) and designed so that in the active position, the magnetic divergence element (mj) deflects at least one portion of said magnetic field from said thermal element (Ti), thereby weakening the magnetic field that crosses [[it]] <u>said thermal element (Ti)</u>. ✓ ✓

32. (PREVIOUSLY PRESENTED) The heat generator (10-14) according to claim 29, wherein the magnetic modulation element (Mj, mj) is advantageously made of at least one material selected from the group consisting of soft iron, ferrites, iron alloys, chromium, vanadium, composites, nano-composites and permalloys.

33. (PREVIOUSLY PRESENTED) The heat generator (10, 12) according to claim 30, wherein the heat generator comprises at least one magnetic divergence element (mj) for alternately promoting passage of the magnetic field toward said thermal element (Ti) and deflecting said magnetic field from said thermal element (Ti).

34. (PREVIOUSLY PRESENTED) The heat generator (10, 11, 12, 14) according to claim 29, wherein at least in the active position, said magnetic modulation element (Mj, mj) is interposed between said magnetic element (Gi) and said thermal element (Ti).

35. (PREVIOUSLY PRESENTED) The heat generator (10-14) according to claim 29, wherein the magnetic element (Gi) comprises at least one positive magnetic terminal (40) and at least one negative magnetic terminal (41), and said thermal element (Ti) is located between said magnetic terminals (40, 41) and, at least in the

active position, said magnetic modulation element (Mj, mj) is interposed between at least said positive and said negative magnetic terminals (40, 41).

36. (PREVIOUSLY PRESENTED) The heat generator (10, 11, 12, 14) according to claim 30, wherein the magnetic convergence element (Mj) comprises two convergence pellets (50) placed, when in the active position, on either side of said thermal element (Ti) between said thermal element (Ti) and said positive and said negative magnetic terminals (40, 41).

37. (PREVIOUSLY PRESENTED) The heat generator (10, 12, 14) according to claims 31, wherein the magnetic divergence element (mj) has one of a U-shape and a C-shape (51), designed to overlap, at least in the active position, said thermal element (Ti) between said thermal element (Ti) and said positive and said negative magnetic terminals (40, 41).

38. (PREVIOUSLY PRESENTED) The heat generator (13) according to claim 31, wherein the magnetic divergence element (mj) comprises at least one contact (50) which is located, when in the active position, tangential to said thermal elements (Ti) and to said positive and said negative magnetic terminals (40, 41), with an air-gap (E) which separates said thermal element (Ti) from said positive and said negative magnetic terminals (40, 41) remaining free.

39. (PREVIOUSLY PRESENTED) The heat generator (13) according to claim 38, wherein the air-gap (E) ranges from 0 mm to 50 mm.

40. (PREVIOUSLY PRESENTED) The heat generator (10-14) according to claim 36, wherein the no limitation in shape and designed to overlap said magnetic modulation element (Mj, mj).

41. (PREVIOUSLY PRESENTED) The heat generator (10 -14) according to claim 29, wherein the displacement means drives said magnetic modulation element (Mj, mj) in at least one of the displacement modes selected from the group consisting of continuous rotation, stepped rotation, alternate pivoting, continuous translation,

stepping translation, alternate translation and a combination of such displacement modes.

42. (PREVIOUSLY PRESENTED) The heat generator (10 -13) according to claim 39, wherein the displacement means is coupled with an actuation means selected from the group consisting of a motor, a cylinder, a spring mechanism, an aerogenerator, an electromagnet, a hydrogenerator and a manual mechanism.

43. (PREVIOUSLY PRESENTED) The heat generator (10 -14) according to claim 29, wherein the magnetic modulation element (Mj, mj) is held by a support (52a-f) coupled with said displacement means and made of magnetically insulating material selected from the group consisting of a synthetic material, brass, bronze, aluminum and ceramic.

44. (PREVIOUSLY PRESENTED) The heat generator (10 -14) according to claim 42, wherein the heat generator comprises at least a unit of magnetic elements (Gi); a unit of thermal elements (Ti), each of which is designed to be subjected to the magnetic field from at least one of said magnetic elements (Gi); and a unit of magnetic modulation elements (Mj, mj) held by a support (52a-f) coupled with said displacement means and designed to simultaneously displace said magnetic modulation elements (Mj, mj) so that each one of said magnetic modulation elements (Mj, mj) is alternately in an active and an inactive position relative to a given thermal element (Ti) and a given magnetic element (Gi).

45. (PREVIOUSLY PRESENTED) The heat generator (10 -13) according to claim 35, wherein a support comprises at least one generally circular platform (52a-d, 52f) rotationally movable about an axis, said thermal elements (Ti) are arranged in a ring, and said magnetic elements (Gi) form at least one pair of rims defining said positive magnetic terminals (40) and negative magnetic terminals (41).

46. (PREVIOUSLY PRESENTED) The heat generator (10 -12) according to claim 45, wherein the platform (52a-d) is equipped with a groove (54a-d) defining an

interval separating at least one of said convergence pellets (51) on said magnetic convergence elements (Mj) from one another and from an opening in said U-shaped and C-shaped portion (51) of said magnetic divergence elements (mj).

47. (PREVIOUSLY PRESENTED) The heat generator (10, 11) according to claim 46, wherein the groove (54a, 54b) is disposed so as to be axial and essentially parallel to an axis of said platform (52a, 52b).

48. (PREVIOUSLY PRESENTED) The heat generator (12) according to claim 44, wherein the groove (54c, 54d) is disposed so as to be radial and essentially perpendicular to an axis of said platform (52c, 52d).

49. (PREVIOUSLY PRESENTED) The heat generator (14) according to claim 35, wherein a support comprises at least one generally rectilinear, translationally movable bar (52e), said thermal elements (Ti) are disposed along at least one line supported by a cross piece (70), and said magnetic elements (Gi) form at least one pair of rows defining said positive magnetic terminals (40) and negative magnetic terminals (41).

50. (PREVIOUSLY PRESENTED) The heat generator (14) according to claim 49, wherein the thermal elements (Ti) are disposed along two generally parallel lines supported by two connected cross pieces (70) defining a frame (72).

51. (PREVIOUSLY PRESENTED) The heat generator according to claim 44, wherein the magnetic elements are formed from a single piece.

52. (PREVIOUSLY PRESENTED) The heat generator (10-14) according to claim 29, wherein the magnetic element is selected from the group consisting of a magnetic assembly, a permanent magnet, an electromagnet, a superconductive magnet, a superconductive electromagnet and a superconductor.

53. (PREVIOUSLY PRESENTED) The heat generator (10-14) according to claim 29, wherein the magnetic element (Gi) and said thermal element (Ti) are fixed and only the magnetic modulation element (Mj, mj) is movable.

54. (PREVIOUSLY PRESENTED) The heat generator (10-14) according to claim 29, wherein the recovery means comprises at least one of the elements selected from the group consisting of a transport circuit containing a heat-transmitting fluid, a circulation means for said heat-transmitting fluid and a heat exchanger.

55. (CURRENTLY AMENDED) A method of generating thermies comprising the steps of:

creating a magnetic field with at least one magnetic element (Gi);

subjecting at least one thermal element (Ti) made of magneto-caloric material to at least one portion of said magnetic field;

using a magnetic modulation means (Mj, mj) to modulate said magnetic field received by said thermal element (Ti) in order to vary said magnetic field received by said thermal element (Ti); and

recovering at least a portion of the thermies generated by said thermal element (Ti) subjected to said variable magnetic field, ~~in order to vary said magnetic field received by said thermal element (Ti),~~ and using at least one magnetically-conductive magnetic modulation element (Mj, mj) ~~is used,~~ which is displaced between at least one active position wherein the magnetically-conductive magnetic modulation element (Mj, mj) is close to said magnetic element (Gi) and said thermal element (Ti) and channels at least said portion of the magnetic field that ~~will be~~ is received by said thermal element (Ti), and an inactive position wherein the magnetically-conductive magnetic modulation element (Mj, mj) is spaced from at least one of said magnetic element (Gi) and said thermal element (Ti) so that the magnetically-conductive magnetic modulation element (Mj, mj) does not channel this portion of the magnetic field.

56. (PREVIOUSLY PRESENTED) The method according to claim 55, further comprising the step of using at least one magnetic element (Gi), defining at least one positive terminal (40) and one negative terminal (41) between which said thermal

element (Ti) is located, and in the active position, said magnetic modulation element (Mj, mj) is interposed between at least said magnetic terminals (40, 41) on said magnetic element (Gi).